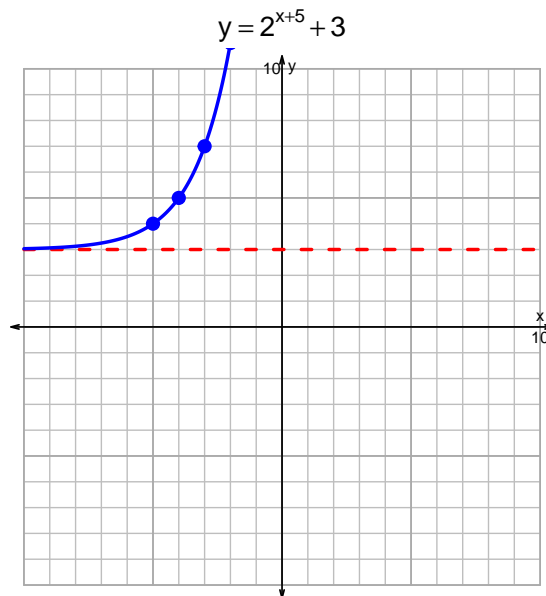
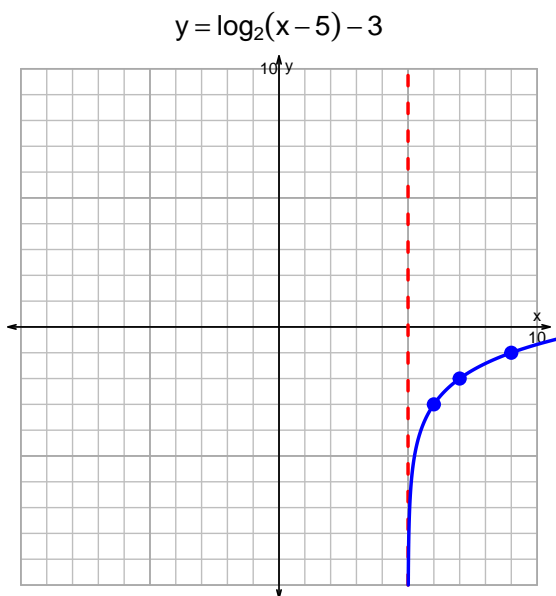


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v148)

1. Graph $y = \log_2(x - 5) - 3$ and $y = 2^{x+5} + 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-17 = \left(\frac{-3}{4}\right) \cdot 10^{7t/5}$$

Divide both sides by $\frac{-3}{4}$.

$$\frac{17 \cdot 4}{3} = 10^{7t/5}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{17 \cdot 4}{3} \right) = \frac{7t}{5}$$

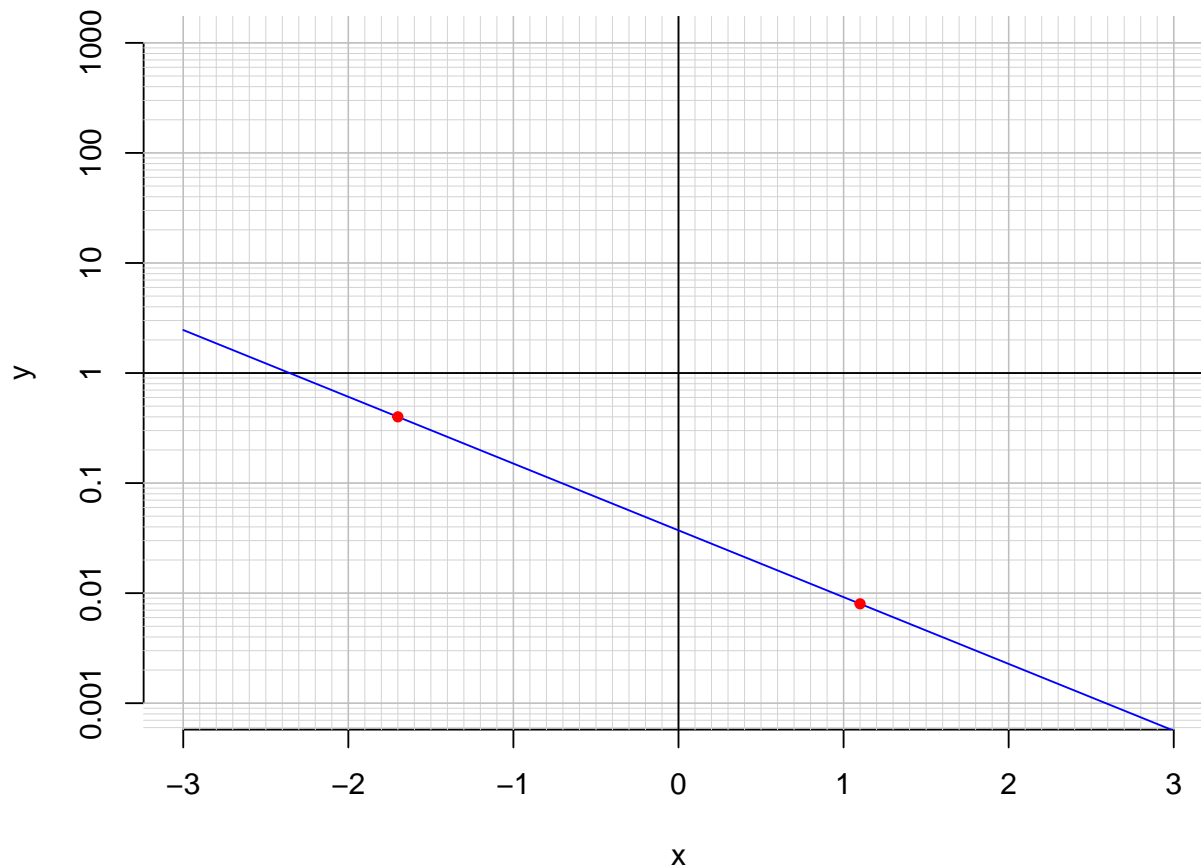
Divide both sides by $\frac{7}{5}$.

$$\frac{5}{7} \cdot \log_{10} \left(\frac{17 \cdot 4}{3} \right) = t$$

Switch sides.

$$t = \frac{5}{7} \cdot \log_{10} \left(\frac{17 \cdot 4}{3} \right)$$

3. An exponential function $f(x) = 0.0372 \cdot e^{-1.4x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(1.1)$.

$$f(1.1) = 0.008$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{1.4} \cdot \ln\left(\frac{x}{0.0372}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.4)$.

$$f^{-1}(0.4) = -1.7$$